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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/509,649    03/30/00    LEE

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MM91/1010

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EXAMINER
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LADAS & PARRY  
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CHANG, A	
ART UNIT	PAPER NUMBER

2872  
DATE MAILED:

10/10/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/509,649

Applicant(s)

LEE ET AL.

Examiner

Audrey Y. Chang

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 19-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other:

## DETAILED ACTION

### *Remark*

- This Office Action is in response to applicant's amendment filed on July 27, 2001, which has been entered as paper number 9.
- By this amendment, the applicant has amended claims 27-28 and 34-36. Claims 19-36 remain pending in this application.
- The rejections to claims 19-27 and 31-33 under 35 USC 112, first paragraph, set forth in the previous Office Action dated February 1, 2001 still hold.
- The rejection to claims 19-27 and 31-33 under 35 USC 112, second paragraph, set forth in the previous Office Action dated February 1, 2001 still hold.
- The objection to claims 28-30 and 34-36 set forth in the previous Office Action is **withdrawn** in response to applicant's amendment.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 19-27, **28-30**, 31-33 and **34-36** are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The reasons for rejection are set forth in the previous Office Action dated February 1, 2001.

Claims 28-30 and 34-36 inherit the rejection from their respective base claims.

Art Unit: 2872

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 19-27, 28-30, 31-33 and 34-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The reasons for rejection are set forth in the previous Office Action dated February 1, 2001.

Claims 28-30 and 34-36 inherit the rejections from their respective base claim.

The phrase "non-diffraction regions" recited in claims 29 and 30 appears to be vague and indefinite since it is not clear how does this phrase or the regions relate to "gray scale regions" and the "diffraction regions" stated in their base claims.

The phrase "the valuable document" recited in claim 34 appears to be vague and indefinite since it lacks proper antecedent basis from its base claim. The phrase "appears to be continuous with regions on the device which have a printed appearance" recited in claim 34 appears to be confusing, vague and indefinite since it is not clear what does it mean. The term "appears to be continuous" seems to be indefinite since it is not clear if it is continuous or not. It is also not clear what is this "printed appearance" and how does it relate to the regions recited in its base claim. The scope of the claims is really unclear.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2872

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 19-23, 24-27, **28-30**, 31-33, and **34-36** are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Lee (PN. 5,428,479).

The reasons for rejection are set forth in the previous Office Action dated February 1, 2001.

With regard to claim 28, Lee teaches that the diffraction grating having relief grooves structure includes a plurality of pixellated diffraction gratings that each of the pixellated diffraction gratings generates an optical variable image upon illumination of light. Optical variable image means the image varied in response to the viewing direction and position of the observer.

With regard to claims 29 and 30, the Lee does not teach explicitly to have non-diffraction regions provide enhancement to the diffraction image. However such feature is either inherently met by a security document having the diffraction grating as security device and having non-diffraction regions including background information or an obvious modification to one skilled in the art since it is well known in the art to provide good contrast between the regions for the benefit of enhancing the diffraction image intended to be viewed.

With regard to claims 34-36, Lee teaches that the diffraction grating may be adapted for application as security devices for currency notes or credit card. The idea of matching the image presented by the diffraction grating and the currency note or credit card is an obvious matter of design choice to one skilled in the art since it involves only routine skill in the art. The manners with respect to inspect the authentication of the security device having the diffraction gratings, recited in claims 35 and 36, do not differentiate the claimed device from prior art device satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ 2d 1647 (1987).

#### *Response to Arguments*

7. Applicant's arguments filed July 27, 2001 have been fully considered but they are not persuasive.

Art Unit: 2872

8. In response to applicant's argument which states that the region "having diffusing scattering characteristics will inevitably appear to an observer to have particular shade of gray when viewed from any direction because diffuse scattering is by definition non-directional" and such differs from the cited Lee reference the examiner respectfully disagrees. Firstly, the "diffusing scattering characteristics" **does not** implicitly mean **non-directionality**, diffusing scattering merely means that the light is scattered into various angles of direction. The word "diffusion" as understood in Physics merely means **angularly redistribution** of radiation by scattering system. It would ideally produce isotropic distribution of the intensity but it is **not implicitly true to always have isotropic distribution**. The diffraction grating in general comprises regularly arranged scattering grooves that scatter and redistribute the incident light into various angular directions. In this case, Lee teaches that each of the pixellated gratings when illuminated generates an optically **variable** reproduction of the optical **invariable** image, (please see column 2, lines 19-21) which means that the redistribution of the light in all viewing direction such that the optical invisible image is capable be viewed by observer at different viewing directions. This reference therefore reads on the instant application.

With regard to applicant's argument concerning the phrase "too small to be separated by resolvable to the human eye", the applicant has agreed that the actual values for the resolution of human eye could be different for different person since applicant states particularly that the values should be from 0.25 to 0.3 mm. The statement therefore is indefinite since it is not clear with respect to whom is the statement defined. It is not clear if this statement means 0.25 mm, 0.3 mm or anything between 0.25 and 0.3 mm. The clarifications are required.

In response to applicant's argument, which states that the cited Lee reference does not result in images which can be viewed from any direction which therefore differs from the instant application, the examiner respectfully disagrees for the reasons stated below. Firstly, the instant application **does not** claim to have "images which can be viewed from any direction" it only recites that **the intensities** for

Art Unit: 2872

different gray scale regions or **particular shade of gray** may be viewed from any direction. No images of any sort are claimed here. Secondly, Lee teaches that each pixellated diffraction grating produces an **optical variable image** when illuminated by light. An “optical variable image”, by definition means diffraction image that is varied in accordance with the viewing position and direction of the observer, which means a diffraction image can always be observed from any viewing direction. Thirdly, Lee teaches that each of the pixellated grating has a **particular chrome or color value** this color value corresponds to the color value of the **optical invariable image** intended for the pixellated grating to represent and it is implicitly true that the color value, the gray scale or the intensities will be optical invariable as the position of the observer changes, (please see column 2) since it is optical invariable by design.

### *Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

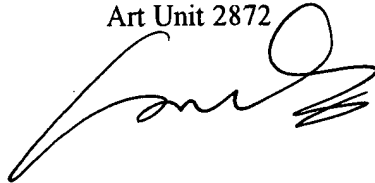
Art Unit: 2872

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang  
Primary Examiner  
Art Unit 2872



A. Chang, Ph.D.  
October 3, 2001